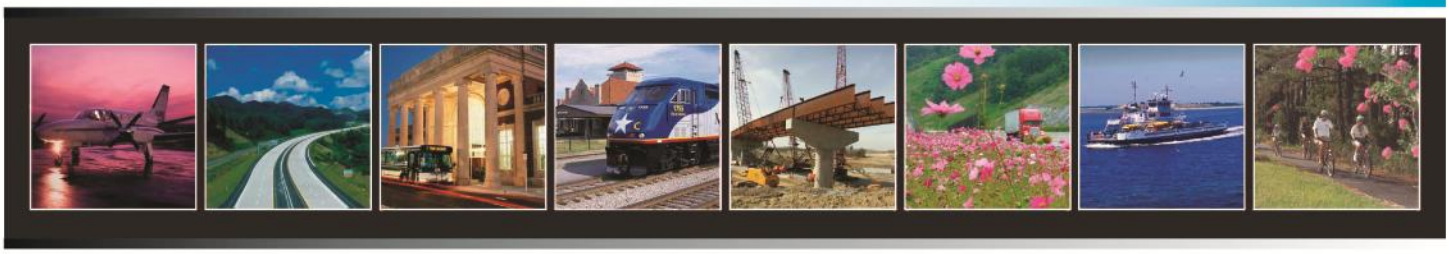
NCDOT
From Policy to Projects
2040 Plan

North Carolina Statewide Transportation Plan



Financial Plan and Investment Strategies

August 2012

Prepared for:

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Executive Summary

North Carolina's statewide transportation plan (2040 Plan) is an effort to define the strategies and investments required to maintain, improve and expand the State's multi-modal transportation network to meet the State's mobility needs, ensure safety and promote economic growth. The ability to implement the vision that the 2040 Plan defines is contingent upon having in place funding sources that generate adequate and sustainable revenues over the long term to meet North Carolina's transportation needs.

Similar to other states and the Federal government, North Carolina has and continues to rely upon revenues derived from motor fuels tax based sources to fund the bulk of its transportation needs. Revenues generated by State and Federal motor fuels taxes represent nearly 75% of total transportation funding in North Carolina. While North Carolina is one of the few states that indexes its motor fuels tax, where the motor fuels tax rate is adjusted semi-annually based on changes in the wholesale price of fuel, growing fuel efficiency threatens its long term sustainability. In addition, reflecting fuel price volatility, the tax rate has actually been reduced in some of these adjustments. The adoption of Federal fuel efficiency standards is expected to result in fuel consumption levels that are 96% and 81% of current trends by 2020 and 2035, respectively. At the same time the long term sustainability of the Federal Highway Trust Fund (HTF) is in question. The limited prospects for a Federal motor fuels tax increase, increasing fuel efficiency and proposals to reduce or eliminate general fund transfer into the HTF could mean Federal transportation funding for an extended period is constrained to the revenues generated by the current motor fuels tax. At the time of the writing of this report, Congress is considering legislation of federal transportation spending authorization statutes that could substantially change federal transportation programs.

Through the 2040 Plan period, the North Carolina Department of Transportation (NCDOT) will need to invest at least $86.3 billion (in 2011 dollars) just to maintain existing Level of Service (LOS) C conditions and between $114.1 billion and $148.2 billion to improve the transportation network's performance and capacity (Target LOS and LOS A, respectively). Clearly, improved fuel efficiency provides significant environmental and health benefits. Nevertheless, it means that the State will need to find a replacement for this key funding source within the next ten years. Given the long term issues facing the State motor fuels tax and Federal transportation funding, current resources are not sufficient or sustainable to meet the State's transportation needs. To maintain existing conditions, the State will need to find new revenue sources to generate $32.3 billion in additional funding to cover a 37% gap. Improving the system means covering a gap of more than 50% in order to generate revenues between $60.1 billion and $94.2 billion over the 2040 Plan period.

While improving the transportation network is essential, North Carolina's transportation policy makers should consider what revenue options are most appropriate to address the long term needs of this state. This conversation must include what level of performance expectation the majority of North Carolina citizens will accept given the limited financial resources available and expected future demand. NCDOT should also discern the timing of when to implement new revenue streams into the mix and if the increase in transportation funding is used for particular projects or specific improvements or simply used for maintenance activities statewide. The accompanying exhibit presents a scenario where the State pursues a higher level of transportation system quality to improve the transportation system, while at the same time replacing the motor fuels tax with a VMT fee. This scenario assumes additional revenues are derived from the

implementation of tolling on all interstate highways, elimination of transfers from the Highway Fund and increases of certain existing revenues. It is understood that this is not the only funding strategy to accomplish this investment objective. It does point out that given the magnitude of needs facing North Carolina; stakeholders in the transportation system will need to consider the merits of broad range of options in order fulfill the 2040 Plan's vision.

Target Level of Service Investment Strategy Funding Scenario (billions of 2011 Dollars)

Target LOS Funding Needs	114.11
Funding From Existing Sources	54.03
Baseline Funding Gap	(60.08)
Removal of Motor Fuel Tax in 2020 (@ 35 cents/gallon)	(24.66)
Gap to be Closed by Additional/Increased Revenues	(84.74)
Additional/Increased Revenue Options:	
VMT Implemented in 2020 (2 cents/mile adjusted with inflation)	26.64
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban increase by 3.5% annually)	41.93
Eliminate Transfers from Highway Fund	4.25
Auto Insurance Surcharge	12.16
Additional 1% Highway Use (Auto Sales) Tax	3.25
Total Additional/Increased Revenues	88.23
Remaining Gap/Surplus	3.49

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Chapter 1
Introduction

The North Carolina Department of Transportation (NCDOT) is charged with developing a long-term vision for transportation in the state and with ensuring that public and private transportation service providers work together to achieve that vision. This includes building, operating, and maintaining a safe and seamless intermodal transportation network that links North Carolina internally, and with the country and the world.

Defining that vision for North Carolina's transportation system is the purpose of this update of the state's long-range transportation plan. Called the 2040 Plan, it defines needed investment, estimated revenue to fund that investment, transportation infrastructure and service investment strategies, and policies supporting them. The plan focuses on the policies and programs needed to enhance safety, improve mobility, and reduce congestion while addressing all types (modes) of transportation for which NCDOT has responsibility: highways, aviation, ferries, rail, bicycle, walking, ports and public transportation.

This technical report provides the results of the financial planning analysis that was conducted to support the 2040 Plan recommendations. The objective of this effort is to:

- Project NCDOTs' existing funding sources over the 2040 Plan period considering economic, demographic, and policy factors that are expected to influence the Department's revenue sources.
- Assess forecasted funding available from existing sources relative to the alternative investment strategies developed as part of the 2040 Plan and define the funding gaps between projected revenues and needs.
- Define and forecast alternative revenue options to close identified gaps. These options include continued motor fuel tax rate indexing and increases for existing funding sources, changes to the distribution of transportation sources between the NCDOT transportation program and other State purposes, and the introduction of new revenue sources. As part of this effort, the projection of new revenue sources considered the impacts of projected economic, demographic and travel variables on estimated revenue yield.
- Evaluate each revenue source based on its ranking against financial, policy, and administrative factors
- Identify a range of gap closing options based on a combination of alternative investment strategies as well as current and potentially new funding sources.

Following this introduction, Chapter 2 presents an overview of NCDOT's existing funding sources and their current allocation towards meeting the State's transportation needs. Chapter 3 presents the methodology and results for the projection of existing revenue sources over the 2040 Plan period and compares them to the Department's current Ten Year Forecast. This chapter also defines the amount of net baseline revenues that are projected to be available for 2040 Plan modal needs after deductions for transfers, administrative costs and debt service on existing obligations. Chapter 4 discusses the funding gap between projected existing revenues and modal needs for different levels of investment strategies, while Chapter 5 presents the methodology, projected funding and evaluation of alternative revenue options. Chapter 6 discusses the results of alternative gap closing options to provide the necessary resources to support projected modal needs and Chapter 7 provides concluding remarks.

Chapter 2
Existing NCDOT Funding

North Carolina, similar to other states, relies primarily upon motor fuels taxes collected at the State and Federal level to fund its transportation needs. In addition, revenues derived from sales taxes on new autos and motor vehicle license and registration fees provide additional resources. With the State's implementation of a comprehensive toll road strategy to deliver new capacity, toll revenues are expected to provide a growing share of resources. Finally, passenger revenue collected by the State's ferries help to defray a portion of that service's operating costs. In addition to these sources local, regional and private entities provide funding support derived from property taxes, local sales tax, value capture and user fees to support local transportation needs. As local and regional funding decisions rests with these entities, the financial plan and investment strategy analysis reported here focuses on the portion of transportation revenues and modal needs that are under NCDOT's direct responsibility. This section describes the structure of the State's transportation funds, the sources of revenues deposited into the funds, and how resources are currently allocated to meet the State's transportation needs.

2.1 North Carolina Transportation Revenue Sources

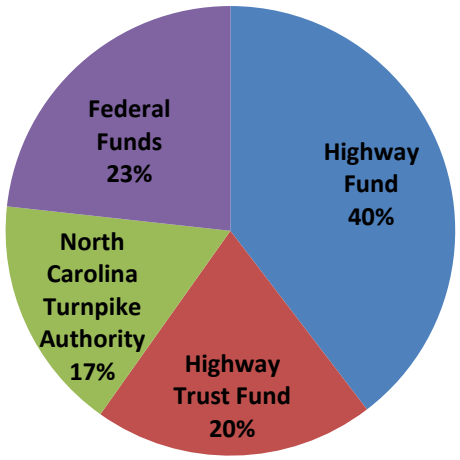
NCDOT's revenues are allocated into three major funds which include:

Highway Fund - provides resources to maintain the State road network, funds administrative expenses of NCDOT and the Division of Motor Vehicles, and supports multi modal programs including public transportation, aviation, ferries, rail, and bicycle and pedestrian program. The Highway Fund also provides resources for secondary road construction and aid to municipalities for road maintenance.

Highway Trust Fund – revenues are used to design and construct legislatively designated intrastate (primarily US and NC routes) and loop highways; revenues also provide supplemental support to municipalities for road maintenance and secondary road construction. In addition, the required federal-aid match comes from the Highway Trust Fund.

Federal Funds - provide resources derived from NCDOT's share of funding received from Federal Highway Administration (FHWA), Federal Transit Administration (FTA) and Federal Aviation Administration (FAA) grant programs to support the construction and maintenance of projects eligible for Federal Aid. Pursuant to Federal Aid formulae Federal funds require

Exhibit 1
NCDOT Funding Sources Fiscal Year 2012



matching funds from State or local sources. In addition to formula funds, NCDOT will receive discretionary grants through special federal initiatives such as the American Recovery and Reinvestment Act which yielded $545 million for High Speed Rail.

In addition to these three major funds, North Carolina established the Mobility Fund in 2010 to devote resources to high priority projects, providing congestion relief and increased mobility. The Mobility Fund receives an amount each year from the Highway Trust Fund defined by statute. Toll road projects are funded separately from NCDOT's primary transportation fund sources. Revenues to support the construction, operation and maintenance of North Carolina Turnpike Authority projects, consisting of toll revenues and statutorily-defined transfers from the Highway Trust Fund, are segregated into funds dedicated to specific projects. Once debt is issued to finance the projects—most recently for the Triangle Expressway and Monroe Connector—these funds are deposited into trustee-held accounts for the benefit of bondholders. It is also important to note that the Department has leveraged a portion of its Federal funds through the issuance of Grant Anticipation Revenue Vehicle (GARVEE) bonds to accelerate improvements and provide interim financing for the Monroe Connector project. In addition, public- private partnership initiatives that the State may consider provide an opportunity to generate funding outside of the traditional trust fund sources.

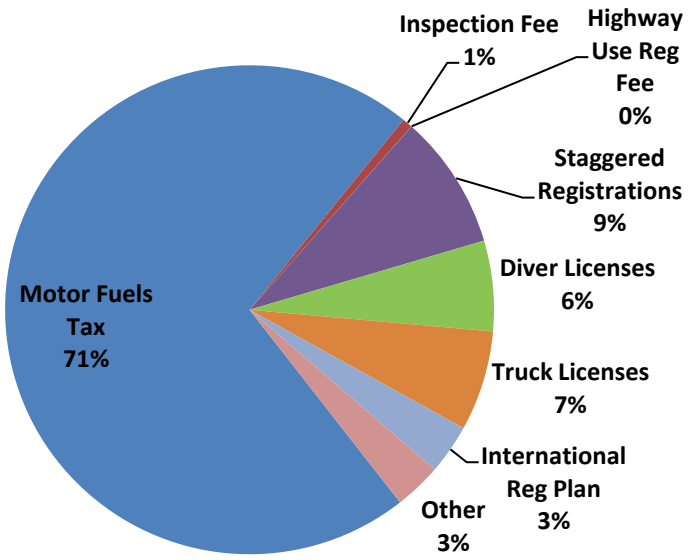
2.1.1 Highway Fund Sources

Exhibit 2 graphically presents the taxes and fees and their share of overall Highway Fund resources. In Fiscal Year (FY) 2012, Highway Fund resources equal $2.1 billion. Revenues derived from the State's motor fuel tax represent 71% of the total. The tax rate consists of a fixed rate of 17.5 cents per gallon and variable rate that is equal to 7% of the average wholesale price of gasoline and diesel fuels. The tax rate is computed twice a year, by the North Carolina Department of Revenue, in January and July and as of January 1, 2012 equals 38.9 cents per gallon. State motor fuel tax revenues are allocated 75% to the Highway Fund and 25% to the Highway Trust Fund.

In addition to the motor fuels tax, the Highway Fund receives revenues from the following licenses and fees:

- Staggered registration fees are paid annually for all private passenger vehicles, vehicles for hire, motorcycles and certain motor homes required to be registered with the Division of Motor Vehicles. Fees are based on the type of motor vehicle and its use.
- Driver's license fees are paid by persons at least 16 years

Exhibit 2
Highway Fund Revenue Sources Fiscal Year 2012



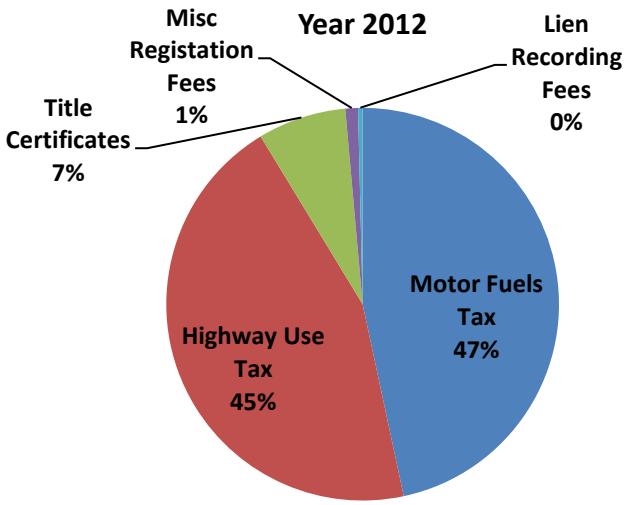
of age and licensed by the Division of Motor Vehicles. The State charges several fees for learner's permits, basic operator licenses, chauffer licenses and commercial licenses.

- Truck license plate fees are levied on all commercial property hauling vehicles that are required to be registered based on weight and load capacity. A base fee plus a variable component that is calculated on per 100 pounds of gross weight is charged.
- International registration plan is a reciprocity agreement for motor carriers in the United States and Canada. Registered vehicles pay a fee based on fleet distance traveled in member jurisdictions.
- Gasoline inspection tax is charged at a rate of ¼ cents per gallon on all petroleum products sold to pay for the costs of inspection to ensure the quality of the products being sold.
- Other fees encompass dealer and manufacturer license fees that are paid by individuals or corporations that are engaged in the sale of new or used vehicles; financial security restoration fee which is charged to a motorist as a civil penalty for failing to maintain liability insurance; fees charged for overweight and oversized vehicles; registration fees for certificates of title and registration cards and plates; safety inspection fees.

2.1.2 Highway Trust Fund Sources

The Highway Trust Fund is primarily funded by the remaining 25% of motor fuels tax revenue collections (47% of HTF total in FY 2012) and the highway use tax which is a 3% tax on motor vehicles when the vehicle is sold in the State or the title is transferred into the State (45% of the HTF total; see Exhibit 3). Other taxes and fees funding the Highway Trust Fund include title and registration fees that are charged at varying rates for the issuance of certificates of title, transfer of registration and replacement of registration plate fees as well as lien recording fees that are charged if a lien is placed on a motor vehicle for failure to make scheduled payments on a loan, or to pay a mechanics bill. FY 2012 Highway Trust Fund revenues are estimated to be $1.1 billion.

Exhibit 3
Highway Trust Fund Revenue Sources Fiscal Year 2012



2.1.3 Federal Fund Sources

Federal transportation funds that will pass through NCDOT in FY 2012 are estimated to be $1.2 billion, which includes recurring formula-based funds and non-recurring appropriations such as provided through the American Recovery and Reinvestment Act of 2009 (ARRA) for intercity rail passenger improvements and short-term highway maintenance programs. Federal funds are derived from Federal motor fuels tax collections deposited into the Federal Highway Trust Fund and transfers from the Federal General Fund. The Federal gasoline fuel tax equals 18.4 cents per gallon and the diesel fuel tax equals 24.4 cents per gallon. Federal funds are distributed to the State based on statutory formulae and discretionary provisions governing the Federal

surface transportation program. FAA funds are derived from Federal taxes on aviation fuel, domestic passenger tickets and other sources. As a donor state, North Carolina receives less in return relative to the State's contribution to the Federal HTF. According to a 2010 Government Accountability Office report, North Carolina had a 91.3% relative share of return during the 2005-2009 SAFETEA-LU authorization period.

2.1.4 North Carolina Turnpike Authority

North Carolina Turnpike Authority (NCTA) funds are derived from toll revenues generated from the toll road projects constructed by the Authority and a fixed amount of statutorily defined annual payments from the Highway Trust Fund dedicated to specific Authority projects. NCTA leverages these revenues through the issuance of debt to finance its projects. NCTA projects FY 2012 funding primarily derived from bond proceeds leveraging its revenue sources and funds derived from GARVEE proceeds to equal $909 million.

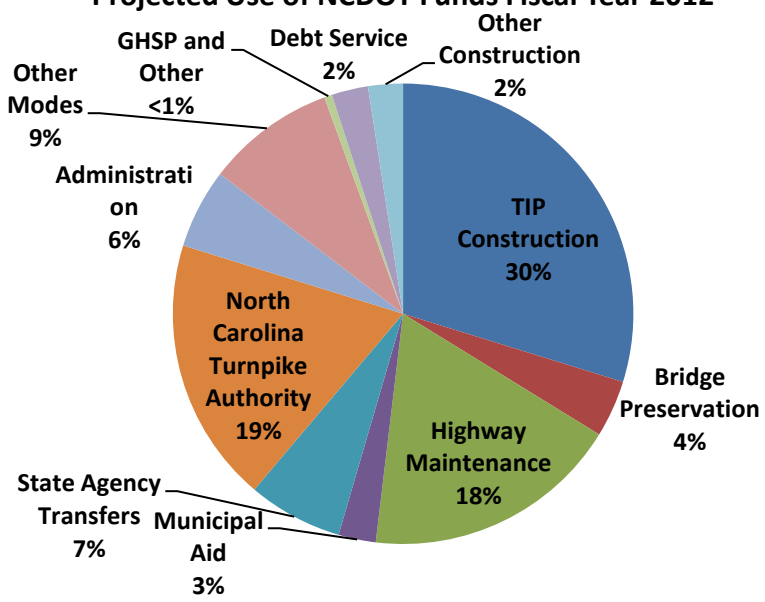
2.1.5 Mobility Fund

By State statute, the Mobility Fund receives transfers from the Highway Trust Fund. The first deposit will be made in Fiscal 2013 in an amount equal to $45 million. Beginning in Fiscal 2014 the amount deposited into the Mobility Fund increases to $58 million annually.

2.2 Uses of Funds

Total FY 2012 resources are projected to be $5.4 billion. NCDOT applies approximately 82% of its resources to statewide transportation program delivery: including Transportation Improvement Program (STIP) projects (30%), highway maintenance (18%), NCTA project construction (19%), bridge preservation (4%), multi-modal programs (9%) and other construction (2%). The balance is devoted to payment of existing debt service obligations, administration, municipal aid, transfers to the General Fund that are used primarily for the State Highway Patrol, driver training programs, costs of transportation tax collections by the Department of Revenue and Department of Agriculture and other activities (see Exhibit 4).

Exhibit 4
Projected Use of NCDOT Funds Fiscal Year 2012



Chapter 3
Projected Baseline Funding

This section describes the methodology and results for the projection of NCDOT's baseline funding sources over the course of the 2040 Plan period. While it is clearly recognized that a number of public and private entities provide funding to support the State's transportation needs for transit, airports, ports and local roads, the financial analysis is focused on defining the projected revenues under NCDOT's direct responsibility and assessing their capacity to meet NCDOT's share of transportation needs. The analysis incorporates economic and demographic factors as well as the effects of projected technology changes that are expected to impact fuel consumption and consequently State and Federal motor fuels tax collections and the receipt of Federal Funds. The analysis also considers potential revenue impacts from policies that could possibly cap the State motor fuels tax or reduce Federal funds. Projected baseline revenues are compared against NCDOT's Ten Year Forecast to identify the level and rationale for any differences. Lastly, the analysis defines deductions related to administration, debt service and transfers to arrive at net projected resources available for modal needs.

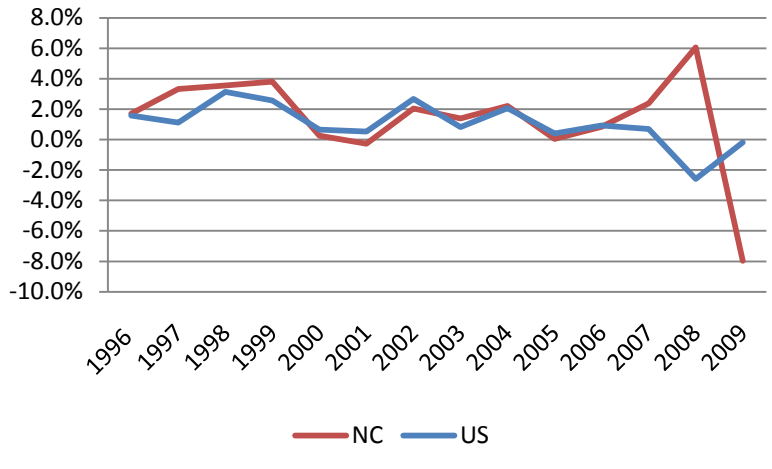
3.1 Methodology, Forecast Drivers and Key Assumptions

The methodology developed to project NCDOT's baseline revenues utilizes the Department's Ten Year forecasting approach as a starting point. As part of this effort, key driving variables that are expected to determine future revenue trends were identified, tested and applied. For example, State motor fuel tax revenues are driven by the combination of the fuel tax rate and fuel consumption, which is influenced by economic and demographic factors as well as changes in vehicle technology. Alternatively, for driver licenses, projected transaction volume is linked to expected changes in population. To the extent possible, driving variables were derived from third party forecasts such as the Energy Information Administration's (EIA) Annual Energy Outlook for fuel consumption. If forecasts of driving variables did not extend to 2040 then the forecasts were extended by applying an average annual growth rate based on the out-year projections. The following describes the methodology that was applied for each of the baseline revenue sources.

3.1.1 State Motor Fuel Tax

As noted earlier, State motor fuel tax revenues are driven by projected fuel consumption and the tax rate. As part of its Annual Energy Outlook, EIA projects annual fuel consumption for the United States currently through 2035. While fuel consumption projections are not available at the State level, Exhibit 5 shows that annual changes in North Carolina fuel consumption between 1996 and 2009 closely tracks the United States – with the exception for 2008 and 2009, when the sharp spike in 2008 and decline in 2009 in

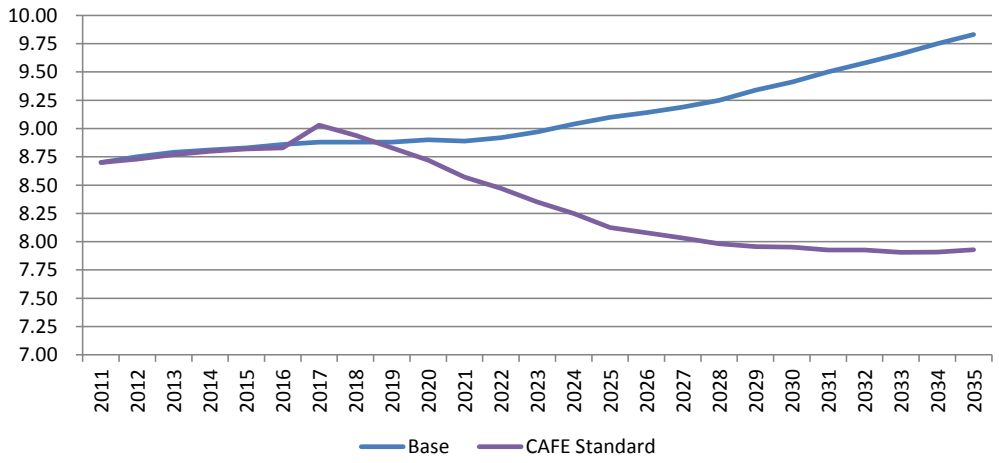
Exhibit 5
Fuel Consumption Growth Rates



State consumption rates was in contrast to national trends. The variation for these two years appears to be a data anomaly. Given this relationship, EIA's national fuel consumption rates were used as a proxy for State fuel consumption.

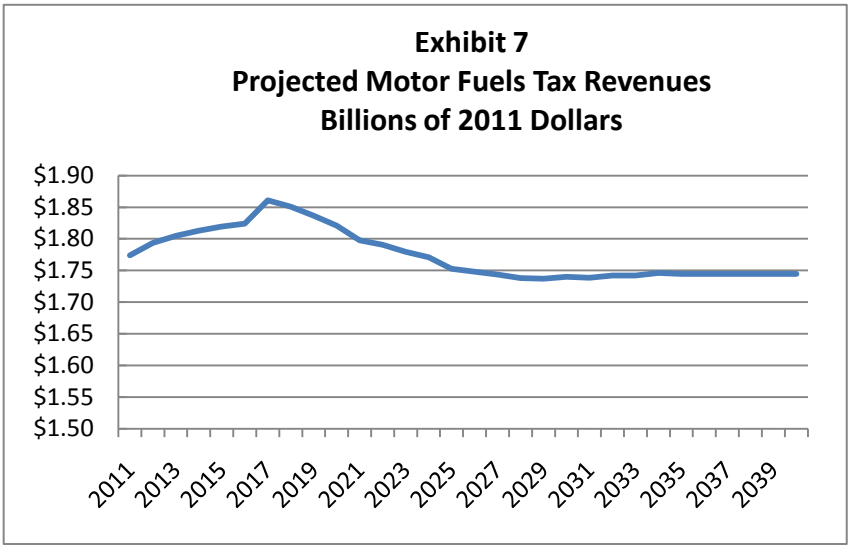
In addition to economic and demographic factors that drive fuel consumption, EIA considers how changes in Corporate Average Fuel Economy (CAFE) standards will improve motor vehicle fuel efficiency. The Federal government has called for fuel efficiency standards to reach 49.6 miles per gallon for light duty vehicles by 2025. This represents a 23% increase in EIA's projected fuel efficiency standards for its base forecast. As part of the development of its Annual Energy Outlook, EIA structures alternative fuel consumption forecasts based on higher levels of CAFE standards—namely either an assumed 3% annual increase or a 6% annual increase.

Exhibit 6
Projected Light Duty Fuel Consumption
(Quadrillion BTU per Year)(*)



While these alternative cases are higher than Federal CAFE standards, they provide a guide for the development of a fuel consumption forecast based on the combination of fuel efficiency and population growth which is closely correlated to growth in vehicle miles traveled (VMT). Exhibit 6 presents the forecast of national fuel consumption based on EIA's base case forecast and one that accounts for the effects of Federal CAFE standards (note one quadrillion BTUs equals eight billion gallons). Initially fuel consumption is projected to be higher under the Federal CAFE standard than the EIA base case. EIA assumes that with higher fuel efficiency standards there will be a longer lag time for consumers to purchase more expensive fuel efficient vehicles. Through the 2035 EIA forecast period, base case fuel consumption is projected to increase by 0.5% annually while consumption under the CAFE standard is expected to decline by 0.4% annually. By 2035 total fuel consumption under the CAFE standard is expected to be 81% of the Base case. As a result, the effects of increasing fuel efficiency and declining consumption are projected to have a significant impact on North Carolina's motor fuel tax revenues. For the baseline projections, the analysis reflects fuel consumption trends utilizing the CAFE standard.

Projected North Carolina fuel consumption was modified to account for the effects of diesel consumption. Since the CAFE standard does not include diesel powered vehicles, namely trucks, the analysis reflects the EIA's baseline consumption growth for this fuel. Reflecting NCDOT practice, gasoline consumption growth based on the CAFE standards is weighted 80%, while diesel consumption is given a 20% weight to arrive at a composite growth rate.



For purposes of the 2040 Plan baseline funding analysis, it is assumed the State's motor fuel tax rate is set at an average of 35 cents per gallon throughout the plan period, even though the tax rate increased to 38.9 cents per gallon in January 2012. This conservative approach has been taken for two reasons: first, NCDOT has not converted to the higher rate for its official short-term forecast used to prepare the TIP; second, the tax rate is not guaranteed to remain at the higher level, or to increase further, as it varies not with general price increase indices but with wholesale gas prices, which have in the past sometimes declined. Exhibit 7 presents projected motor fuels tax revenues in 2011 dollars. Projected motor fuel tax revenues are deflated to 2011 dollars using a 3.5% annual rate. Similarly all other revenue projections presented in this analysis are deflated using the same 3.5% rate and stated in 2011 dollars. Exhibit 7 shows real declines in revenues over the 2040 Plan period reflecting the combination of increasing fuel efficiency and the diminishing purchasing power of a static average motor fuel tax rate of 35 cents. Based on these assumptions, motor fuel tax revenues are projected to total $33.9 billion over the plan period. If it is assumed that the tax rate is raised to the January 2012 rate of 38.9 cents per gallon, and capped at this rate thereafter, total motor fuel tax revenues over the plan period would be 11% higher or $37.6 billion.

3.1.2 Federal Funds

Federal funds received from Federal motor fuels taxes are projected using the same methodology as the State motor fuels tax. Annual changes in Federal Funds are first driven by projected changes in fuel consumption reflecting CAFE standards. Federal funding is also subject to Administration and Congressional priorities established as part of the multi-year authorization of the Federal surface transportation program which historically has provided defined and stable funding to the states over a six year authorization period. The most recent authorization, known as the Safe Accountable Flexible Efficient Transportation Equity Act a Legacy for Users (SAFETEA-LU) expired in 2009 without the implementation of a successor multi-year act. Rather, Federal funding has continued through the enactment of several multi-month extensions of the program. Given the continuing lack of a multi-year authorization for the Federal Surface Transportation program and periodic proposals by elected officials to restrict funding to levels equal to amounts deposited into the HTF, the baseline analysis assumes that Federal funds are reduced by 35% beginning in 2013. Total Federal funds are projected to be $12.4 billion over the course of the 2040 Plan period, expressed in 2011 dollars.

3.1.3 Highway Use Tax

Highway use tax projections are based upon the Department's methodology where revenues are driven by the growth rates for US consumer spending on motor vehicles as forecasted by IHS Global Insight for the North Carolina Office of State Budget and the 3% tax rate. Over the 2040 Plan period Highway Use Tax revenues are projected to equal $12.2 billion.

3.1.4 Licenses and Fees

Reflecting the Department's projection methodology, Highway Fund licenses and fees which primarily consist of the staggered registration fee, driver licenses and truck licenses are projected to increases based on population growth. Highway Trust Fund fees which consist of vehicle-based title and registration fees are projected to grow at 60% of the projected rate for consumer auto spending. For the baseline projections, current license and fee rates remain unchanged. Total revenues from licenses and fees are estimated at $15.0 billion over the 2040 Plan period.

3.2 Revenue Sources Not Included in Baseline

Given North Carolina Turnpike Authority toll revenues are segregated to exclusively support the construction, financing and operating needs of its toll road projects, their revenues are not included as part of the estimate of baseline funding. Similarly, revenues transferred from the Highway Trust Fund to support the financing of toll road projects are also excluded from the baseline funding estimate. Finally, revenues generated from ferry fares are also not included in the baseline since these resources are dedicated to paying a portion of ferry operating expenses.

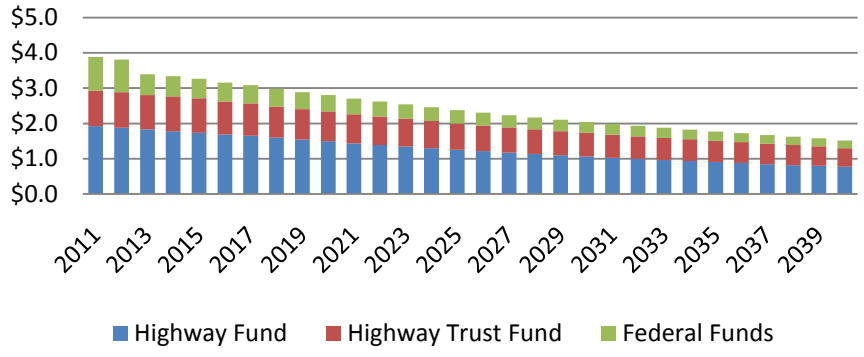
3.3 Comparison with NCDOT's Ten Year Forecast

NCDOT estimates that total State and Federal revenues to be $34.1 billion from 2013-2022, while the 2040 baseline estimates revenues to be 8% less at $31.4 billion (both estimates are in 2011 dollars). This difference is attributable to the combination of an assumed 35% reduction Federal Funds beginning in Fiscal 2013 and out-year effects of lower levels of fuel consumptions as a result of the Federal CAFE standards.

3.4 Projected NCDOT Baseline Revenues

Exhibit 8 presents the annual baseline projection of NCDOT revenues over the 2040 Plan period, based on the previously-discussed methodology and results. Over the plan period, baseline revenues are projected to total $73.7 billion. State motor fuel tax revenues are estimated to equal 46% of that total, Federal funds 17%, highway use tax 17%, and titles and fees the remaining 20%. For purposes of defining the net amount of revenues available to support 2040 modal needs and investment strategies, funds dedicated to payment of existing or committed near term debt issuances, transfers, municipal aid and administrative expenses were deducted from the projected amount of gross revenues. This reduces amount available for modal needs by 27% to $54.0 billion over the 2040 Plan period.

Exhibit 8
NCDOT Baseline Revenue Projections
$ in Billions



3.5 Conclusions Regarding Anticipated Future Funding

The assumed reduction in Federal support is projected to contribute to a 13% decline in 2013 NCDOT revenues. **Given the combination of reduced Federal funds, static tax rates and the effects of increasing fuel efficiency, total revenues are projected to experience 2.9% average annual decline in real terms over the 2040 plan period.** As a result, the purchasing power of baseline funding is severely diminished over time. As described in the next chapter, this projected decline in real revenues poses significant challenges to NCDOT's ability to provide the necessary resources to meet its existing needs, let alone fund initiatives to improve and expand the transportation network.

Chapter 4
Baseline Funding Gap

A key element of the 2040 Plan is the development of investment strategies to allow NCDOT to address the State's transportation needs. Investment strategies were defined based upon the goal to achieve a desired level of service. The detailed methodology and results of this effort are presented in the Modal Needs Technical Report. This section summarizes modal needs by investment category and the net needs that are NCDOT's funding responsibility, based on current levels of state/local project funding responsibility and utilizing State and Federal funds. Net needs are compared to projected baseline funding in order to define the baseline funding gap.

4.1 Modal Needs

For the 2040 Plan, North Carolina's 30-year transportation needs have been determined. These represent NCDOT expenditures that would be required to deliver transportation services and infrastructure for all modes of transportation, to provide for public safety, to maintain and modernize infrastructure, and to expand systems to meet expected growth and changes in North Carolina's population and its economy. The needs have been reported at varying levels of service (LOS). LOS is a measure developed by NCDOT as part of its Project Prioritization process to reflect transportation service or maintenance performance targets or standards. As defined by NCDOT, level of service is the "quality of service from the perspective of the user" and can vary from a "desired state" of LOS A to a failing state of LOS F. Each major component of NC's transportation network is evaluated through LOS every two years and the overall average of the State's transportation systems currently operates at a marginally acceptable LOS C.

Exhibit 9 presents North Carolina's 30-year modal needs in two different formats: total costs in 2011 dollars irrespective of the responsibility party and NCDOT's share of those 30-year needs, based on current funding formulae. Scenarios were developed for LOS A through LOS D investment levels. While a LOS A standard would deliver the highest performance standard for the state's transportation network, it is recognized that more cost effective improvements could be delivered with a more targeted investment approach. As such a Target LOS scenario was developed. In 2011 dollars, it is estimated that North Carolina will require $159.5 billion for all modes of transportation to achieve an LOS A and $122.8 billion for the Target LOS scenario. The amount needed would diminish at lower levels of service.

NCDOT's funding responsibility is less than the amounts defined above, reflecting that for non-highway modes, NCDOT is in a funding partnership with other public and private entities. Generally, NCDOT provides matching funds ranging from 10 to 25% for capital or operating expenses depending upon the mode and funding program. To meet total LOS A needs of $159.5 billion, NCDOT would need to provide $148.2 billion.

Exhibit 9
Projected Modal Needs (billions of 2011 Dollars)

Level of Service	Total Needs	NCDOT Funding Responsibility
Target LOS	122.83	114.11
LOS A	159.53	148.20
LOS B	130.39	121.00
LOS C	94.13	86.30
LOS D	66.17	59.70

4.2 Baseline Funding Gap

NCDOT's projected share of modal needs for each level of service was compared against the baseline funding projections over the 2040 Plan period to identify the gap between available resources and needs. As shown in Exhibit 10, baseline revenues are projected to be insufficient to support NCDOT efforts to maintain the current LOS C standard with a deficiency of $32.3 billion requiring a 37% increase in revenues, while there is even a small funding gap to achieve a lower LOS D standard. The gap between anticipated 30-year resources and needs widens to be in excess of $60 billion to $94 billion necessitating more than a doubling in revenues for the Target LOS and LOS A and LOS B scenarios.

Exhibit 10
Projected Needs, Funding and Funding Gap (billions of 2011 Dollars)

	Target LOS	LOS A	LOS B	LOS C	LOS D
Total Needs	**122.83**	**159.53**	**130.39**	**94.13**	**66.17**
NCDOT Share of Needs	114.11	148.20	121.00	86.30	59.70
Funding from Existing Sources (*):					
Federal	12.42	12.42	12.42	12.42	12.42
State	41.61	41.61	41.61	41.61	41.61
Total Baseline Revenues	54.03	54.03	54.03	54.03	54.03
Baseline Funding Gap	**(60.08)**	**(94.17)**	**(66.97)**	**(32.27)**	**(5.67)**

(*) Assumes State Motor Fuel Tax equals an average of 35 cents starting 2011 and 35% reduction in Federal funds starting in 2013.

4.3 Conclusions Regarding Current Funding Levels

As can be seen in Exhibit 10, projected available State resources are insufficient to maintain the State's transportation system at even an unacceptable LOS D, let alone for expansion of the current system to address current congestion levels and meet future mobility needs. NCDOT's 2011 funding, excluding NCTA funds, debt service, administrative costs and transfers equals $3.5 billion. To maintain current LOS C conditions, the annual funding would need to increase to $5.7 billion in today's dollars. To achieve higher standards defined for LOS B and A, annual spending would need to increase to more than $7 billion to $10 billion per year, respectively. The following chapter presents a range of options for providing sustainable long term funding and closing the gap.

Chapter 5
Alternative Revenue Options

Alternative revenue options were evaluated to identify strategies for closing the identified funding gaps. The options under consideration included those that would allow inflation-based indexing or increases for existing sources; redirecting or eliminating transfers of transportation-based revenue sources to non-transportation program uses and the introduction of new revenue sources. This section describes the alternative revenue options, the method used to project revenues and their revenue potential over the course of the 2040 Plan period. The analysis also includes an evaluation of each option based on its ranking against financial, policy and administrative factors.

5.1 Indexing and Increasing Existing Revenue Sources and Redirecting Transfers to NCDOT

Exhibit 11 presents the range of options for increasing revenues from existing sources. It also identifies options for redirecting transfers of existing transportation revenue sources to NCDOT for delivery of the Department's program. The strategies encompass:

- **Continue Motor Fuel Tax Indexing:** Under this option, the State's current practice to index the motor fuels tax rate continues throughout the 2040 Plan. The tax rate is based on a constant 17.5 cents per gallon plus a variable component equal to 7% of the average wholesale price of fuel. EIA data was used to identify the base fiscal 2012 average wholesale fuel price. This rate was annually escalated assuming EIA's real price growth of 1.3% plus an assumed 3.0% underlying inflation rate. Annual fuel consumption reflects the same methodology utilized to project baseline motor fuels tax revenues assuming an average annual tax rate of 35 cents per gallon. Indexing the motor fuels tax through 2040 is expected to yield an additional $18.9 billion in 2011 dollars.
- **Redirect Short Term Vehicle Lease Fee to NCDOT:** Revenues from an 8% tax on short term vehicle leases are deposited into the State General Fund. This option assumes the tax is redirected to NCDOT to support its transportation programs. Given the highly cyclical nature of historical tax collections, it was conservatively assumed that revenues would remain effectively flat over the 2040 Plan period. Assuming this revenue source was redirected to NCDOT in 2016, total projected revenues would equal $0.6 billion in 2011 dollars.
- **Increase Registration and License Fees with Inflation:** This option assumes the Department's various licenses and fees for drivers and vehicles are increased every five years to reflect the cumulative effects of inflation. A 3% inflation rate was assumed. Registration and license fee growth reflects the same methodology utilized for the baseline projection. With the first adjustment implemented in 2016, inflationary increases are expected to yield an additional $6.1 billion in total revenues in 2011 dollars.
- **Eliminate Transfers from the Highway Fund:** Beginning in 2016 amounts transferred from the Highway Fund to the General Fund, which are used primarily for the State Highway Patrol, driver training programs, costs of transportation tax collections by the Department of Revenue and Department of Agriculture and other activities, would be redirected to NCDOT to fund the delivery of the transportation program. It is understood that this would not represent a net increase in funding and that there would need to be a replacement revenue source to fund these non-NCDOT programs. The

amount of the transfers was estimated by assuming the level of current transfers would grow in relation to the Highway Fund. Between 2016 and 2040 it is estimated this would yield $4.3 billion in 2011 dollars.

- **Additional 1% Highway Use Tax:** This option assumes that the highway use tax rate is raised from 3% to 4% in 2016. Using the methodology applied for the baseline revenue forecast where highway use tax revenues grow relative to consumer spending on autos, it is estimated that the additional 1% tax would yield $3.3 billion in 2011 dollars.

Exhibit 11

Increase Existing Revenue Source Yields

Transportation Revenue Enhancement Options	Estimated Revenue Yield Total Through 2040, $ Billions	Assumed Year of Implementation
Continue Motor Fuel Tax Indexing	18.85	2011
Redirect Short Term Vehicle Lease Fee to NCDOT	0.63	2016
Increase Registration/License Fees with Inflation	6.13	2016
Eliminate Transfers from Highway Fund	4.25	2016
Additional 1% Highway Use Tax- (sales tax on autos)	3.25	2016

5.2 New Revenue Sources

In addition to increases in or redirection of existing tax sources to NCDOT, the analysis also considered the revenue potential from potential new sources. The revenue options were selected by directly linking the cost and benefits of the transportation system to the taxpayer and user of the road network. That is fees would be based on vehicle ownership and/or usage of the network. In return, the fees paid would be dedicated to maintaining state of good repair and providing additional transportation capacity—similar to the structure and use of the existing revenue sources funding the Department. An additional and important goal of the identification of new revenue sources was to define options that are not or are less sensitive to the effects of improving fuel efficiency. For purposes of this analysis revenue sources that require new enabling legislation and/or new revenue collection mechanisms are assumed to be implemented in 2020 to provide sufficient time to put the necessary legislation and revenue collection infrastructure in place. These options, summarized in Exhibit 12, include:

- **Auto Insurance Surcharge**: Revenues are based on a 10% surcharge levied on the liability portion of the premium paid for auto insurance. Revenues are estimated based on the average North Carolina auto liability insurance premium. The average premium rate is reduced by 18% to reflect premium discounts based on information provided by NCDOT. The net premium is multiplied by the number of North Carolina licensed motor vehicles according to data provided by the Department. This produces the estimate of tax revenues. Annual tax revenues grow based on two factors (1) the projected increase in premiums which is assumed to reflect the ten year average of the motor vehicle insurance portion of the consumer price index (3.9%) and (2) the projected growth in motor vehicles based on the estimated increase in consumer spending on motor vehicles as forecasted by IHS Global Insight for

the North Carolina Office of State Budget. Assuming the surcharge is imposed in 2020, total revenue through 2040 is estimated to be $12.2 billion in 2011 dollars.

- **Local Vehicle Property Tax:** This option assumes that a 5% increase in existing local property tax collections on motor vehicles would be dedicated for local road projects. The analysis is based on the total value of in-state motor vehicles multiplied by an assumed average local tax rate of $0.07/$100 of assessed valuation. This estimate is further multiplied by 5% to reflect an assumed improvement in tax collections. Revenues grow by the projected change in value of motor vehicles which is driven by the annual change in consumer spending. If implemented in 2016, this revenue source would yield a total of $500 million in 2011 dollars.
- **Wholesale Motor Fuel Tax:** This is envisioned to be a new tax that assumes an 8% tax rate on the wholesale price of motor fuels. Revenues grow base on an underlying 3% annual inflation rate applied to the wholesale price and projected fuel consumption reflecting the baseline forecasting methodology reflecting the implementation of the Administration's CAFE standards. Assuming the tax is implemented in 2020, total revenues are expected to equal $12.2 billion in 2011 dollars.
- **Interstate Highway Tolling:** This option is based on the imposition of tolls along all of the North Carolina's Interstate highways beginning in 2020. Tolls are set at a rate (in 2011 dollars) of $0.12 cents per mile along the more heavily traveled urban sections and $0.06 per mile in rural sections. Tolls would increase at an annual rate 3.5% consistent with the toll setting practice for new toll roads where annual increases are in line with expected cost inflation. Toll revenues are determined by multiplying the urban and rural toll rates by vehicle miles traveled for those sections of the interstates as reported by NCDOT. To account for the cost of collection and toll evasion, it is assumed gross toll revenues are reduced by 30%. Toll revenues grow by the combination of the 3.5% annual increase in toll rates and VMT growth which is driven by population projections. Projected revenues from interstate tolling are estimated to generate $41.9 billion in 2011 dollars between 2020 and 2040.
- **Vehicle Miles Traveled Fee:** Given the expected degradation of state motor fuel tax revenues as a result of increasing fuel efficiency, a statewide VMT fee could be considered as a replacement revenue source. While it is recognized that there are significant technology and privacy issues that would need to be resolved prior to the implementation of the fee, it is understood that a VMT based tax is a more sustainable and equitable funding source than the motor fuels tax because it directly links the fee paid with the users and usage of the highway network. This option assumes that a 2 cents per mile fee is imposed (in 2011 dollars) and increases annually based on an underlying 3% annual inflation rate. This rate structure assumes the VMT fee is set at a level sufficient to replace the motor fuel tax and not raise additional revenues. Of course, additional revenue could be generated based on a higher VMT rate. Statewide VMT is based on NCDOT data and, similar to the interstate tolling option, is projected to grow in line with population. To account for the cost of collection and evasion, it is assumed gross revenues are reduced by 30%. With a 2020 implementation, total VMT revenues are projected to be $26.6 billion in 2011 dollars.

Exhibit 12

New Revenue Source Yields

Transportation Revenue Enhancement Options	Estimated Revenue Yield Total Through 2040, $ Billions	Assumed Year of Implementation
Auto Insurance Surcharge (10% Tax Rate)	12.16	2020
Dedicated Local Vehicle Property Tax	0.50	2016
Wholesale Motor Fuels Tax (8%)	12.22	2020
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban, adjusted for 3.5% inflation)	41.93	2020
VMT Fee (2 cents/mi adjusted for inflation)	26.64	2020

5.3 Alternative Revenue Options Evaluation

To develop a sense of the feasibility of each of the revenue options defined above, each of the revenue options were evaluated against a set of evaluation factors which include:

- **Revenue Magnitude:** Funding options that generate significant revenues from a broad tax or user base are rated highly. Revenue options are rated on a relative scale where those generating total revenues over the 2040 Plan period greater than $15 billion were rated as “high”, those with revenues between $5 billion and $15 billion were rated “medium,” and “low” was assigned to those that would generate less than $5 billion in revenues.
- **Financial Sustainability:** Revenue options should have long term sustainability. They should not be subject to large swings due to economic cyclicality or diminishing yield such as from the effects of improving fuel efficiency. Options were given a “high”, “medium” or “low” rating based on their ability to provide growing, sustainable and long term funding.
- **Revenue Predictability:** Options where the underlying economic, demographic and/or travel factors are known and have a well-established track record are assigned the highest rating. For example, while the motor fuel tax’s long term revenue sustainability is low, it is a highly predictable revenue source given it has a well-established track record and the variables driving revenue growth are known. Options where the amount and potential growth of revenues is less certain are assigned either a “medium” or “low” rating depending upon the level of uncertainty. While there is some uncertainty around the amount of revenues that could be generated from interstate tolling due to diversions and evasion, for example, this risk is mitigated in part due to the long history of traffic demand and the application of tolling throughout the U.S. and most recently in North Carolina. As a result this option is given a “medium” rating. Although a VMT fee is generated from an established traffic base and is expected to be a highly sustainable revenue source, at this point the methodology and technology to assess the fee, collect revenues and minimize evasion is uncertain. Therefore this option is rated “low” based on revenue predictability.
- **Implementation Logistics:** This refers to the ease in which revenue options can be implemented given technology and administrative requirements. Existing revenue options with established collection mechanisms were rated as “high”. New options requiring the acquisition of existing or the

development of new technology and the establishment of administrative procedures to collect revenues were either assigned a "medium" or "low" rating.

- **Implementation Policy Challenge:** The revenue options were also evaluated against their likely ability to receive support or face a challenge from elected officials, policy makers and residents given a general assessment of current policy conditions. Options were rated based on assessment of limited challenge ("high"), hard ("medium") or unlikely ("low").
- **Social Equity:** This is an evaluation of the equitable treatment of a revenue option's tax burden impact across all income groups. Taxes such as the motor fuels tax which is levied at the same rate regardless of income is less equitable and is assigned a "low" rating. Alternatively, taxes or fees where there exists some choice not to pay the tax or fee, such as interstate tolling, are given a "medium" rating. Revenue options that involve the redirection of funds from the general fund or other agencies to NCDOT transportation programs have minimal impact and are given a "high" rating.

Options that have a "high" rating within in an evaluation category are assigned a numeric value of "3", those with a "medium" rating a "2", while a "low" rating is assigned a "1". Given the priority to generate a sufficiently high level of revenues to support NCDOT's transportation needs, the revenue magnitude rating scores were doubled. Exhibit 13 shows each revenue options individual rating against the evaluation categories and their total score. Options with a total score of 15 or more were given a "high" overall rating; those with a score of either 13 or 14 were assigned a "medium" rating, while revenue options with a total score less than 13 were assigned a "low" rating.

Revenue options that involve the continued indexing of the motor fuel tax and the redirection of existing revenues to NCDOT transportation programs were given a "high" overall rating. This generally reflects their well-established revenue predictability and administrative ease of implementation, or continuation. In the case of the continued indexing of the motor fuel tax, the high rating for revenue magnitude is offset to a degree by its low revenue sustainability. Interstate tolling was given a "high" overall rating given its significant revenue potential, sustainability and reasonable predictability.

VMT was assigned an overall medium rating reflecting its strong revenue potential and sustainability, factors somewhat offset by potential stakeholder resistance and technological and administrative challenges surrounding its implementation. Inflationary license and registration fee increases and an additional 1% increase in the highway use tax received relatively high implementation and predictability ratings that were offset by low revenue magnitude scores. The auto insurance surcharge was also given a medium rating reflecting its mid-line ranking across all categories.

The dedicated local vehicle property tax was given a low rating reflecting its low revenue generating capacity and predictability as well as expected strong resistance from stakeholders. The wholesale motor fuels tax was also assigned a low rating. While it achieved mid-line scores for revenue magnitude and predictability, the wholesale tax was viewed to have an adverse social equity impact and high stakeholder resistance.

Exhibit 13

Alternative Revenue Option Evaluation

Transportation Revenue Enhancement Options	Estimated Revenue Yield Total Through 2040, $ Billions	Assumed Year of Implemen-tation	Revenue Magnitude		Financial Sustainability		Revenue Predictability		Implemen-tation: Logistics		Implemen-tation: Policy Challenge		Social Equity		Overall Rating Potential (Out of 19 Possible Points)	
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban, adjusted for 3.5% inflation)	41.93	2020	High	6	High	3	Medium	2	Medium	2	Medium	2	Medium	2	High	17
Continue Motor Fuel Tax Indexing	18.85	2011	High	6	Low	1	High	3	High	3	Medium	2	Low	1	High	16
Redirect Short Term Vehicle Lease Fee to NCDOT	0.63	2016	Low	2	Medium	2	High	3	High	3	Medium	2	High	3	High	15
VMT Fee (2 cents/mi adjusted for inflation)	26.64	2020	High	6	High	3	Low	1	Low	1	Medium	2	High	1	Medium	14
Auto Insurance Surcharge (10% Tax Rate)	12.16	2020	Medium	4	Medium	2	Medium	2	Medium	2	Medium	2	Medium	2	Medium	14
Increase Registration/License Fees with Inflation	6.13	2016	Low	2	Medium	2	High	3	High	3	High	3	Low	1	Medium	14
Eliminate Transfers from Highway Fund	4.25	2016	Low	2	N/A	3	High	3	High	3	Medium	2	Low	1	Medium	14
Additional 1% Highway Use Tax- (sales tax on autos)	3.25	2016	Low	2	Medium	2	High	3	High	3	Medium	2	Medium	2	Medium	14
Wholesale Motor Fuels Tax (8%)	12.22	2020	Medium	4	Low	1	Medium	2	Medium	2	Medium	2	Low	1	Low	12
Dedicated Local Vehicle Property Tax	0.50	2016	Low	2	Medium	2	Low	1	Medium	2	Low	1	Medium	2	Low	10

Chapter 6
Gap Closing Options

Combinations of funding packages were developed to define options to close the gap between projected baseline funding and modal needs. The revenue packages were structured to determine how much of the funding gap could be closed based on the following strategies which were considered in the analysis:

- Interstate tolling to supplement existing sources
- VMT fee replaces the motor fuels tax in 2020
- Existing revenue sources with indexing and increases
- New revenue sources

Exhibit 14 shows the revenue impact associated with implementation of tolling of NC's Interstate highway system in 2020. The substantial revenues generated from this option have a significant impact on the funding gaps. Tolls close the gap and provide surplus revenues for the LOS C and D modal needs. They substantially reduce the funding gaps for LOS A and LOS B and the Target LOS scenario. Exhibit 15 presents the impacts from replacing the motor fuels tax, assuming the continuation of indexing, and replacing it with a VMT fee in 2020. This analysis determined that 2 cents per mile VMT fee (in 2011 dollars) escalating with inflation would provide revenues equivalent to the motor fuels tax. While the funding gap remains effectively unchanged under this scenario, the State would replace its key funding source which is facing significant long term challenges with one that has sustainable long term prospects.

Exhibit 14
Interstate Tolling (billions of 2011 Dollars)

	Target LOS	LOS A	LOS B	LOS C	LOS D
Baseline Funding Gap	(60.08)	(94.17)	(66.97)	(32.27)	(5.67)
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban, adjusted for 3.5% inflation)	41.93	41.93	41.93	41.93	41.93
Remaining Gap/Surplus	(18.15)	(52.24)	(25.04)	9.66	36.26

Exhibit 15
VMT Fee Replaces Motor Fuel Tax in 2020 (billions of 2011 Dollars)

	Target LOS	LOS A	LOS B	LOS C	LOS D
Baseline Funding Gap	(60.08)	(94.17)	(66.97)	(32.27)	(5.67)
Removal of Motor Fuel Tax (@ 35 cents/gallon)	(24.66)	(24.66)	(24.66)	(24.66)	(24.66)
VMT Fee	26.64	26.64	26.64	26.64	26.64
Remaining Gap/Surplus	(58.10)	(92.19)	(64.99)	(30.29)	(3.69)

Revenue options focused on increasing revenues from existing sources and redirecting funds to NCDOT transportation programs yield a projected surplus for the LOS C and D modal needs strategies, as shown in Exhibit 16. The revenues generated reduce the Target LOS and LOS B gap by about 50% and the LOS A gap by 35%. While this funding package provides substantial resources towards meeting NCDOT's modal needs, it is still reliant upon and sensitive to declining motor fuel tax revenue trends.

Exhibit 16
Enhance Existing Revenue Sources (billions of 2011 Dollars)

	Target LOS	LOS A	LOS B	LOS C	LOS D
Baseline Funding Gap	(60.08)	(94.17)	(66.97)	(32.27)	(5.67)
Continue Motor Fuel Tax Indexing	18.85	18.85	18.85	18.85	18.85
Increase Registration/License Fees with Inflation	6.13	6.13	6.13	6.13	6.13
Eliminate Transfers from Highway Fund	4.25	4.25	4.25	4.25	4.25
Redirect Short Term Vehicle Lease to NCDOT	0.63	0.63	0.63	0.63	0.63
Additional 1% Highway Use Tax-(sales tax on autos)	3.25	3.25	3.25	3.25	3.25
Remaining Gap/Surplus	(26.97)	(61.06)	(33.86)	0.84	27.44

A strategy based on the implementation of new funding options eliminates the gap and produces a surplus for all other modal needs investment strategies except LOS A, as shown in Exhibit 17. Interstate tolling and the auto insurance surcharge provide significant, reasonably predictable and sustainable funding. The VMT fee is also instituted to replace the motor fuels tax. While the VMT provides substantial and sustainable funding, as noted earlier its revenue predictability is more uncertain. The wholesale motor fuels tax was given a low rating due to its limited long term sustainability and high adverse impact on social equity—similar to the motor fuels tax. Likewise, the local vehicle property tax was given a low rating due to its limited revenue potential, limited predictability and likelihood for strong stakeholder resistance.

Exhibit 17
New Revenue Sources (billions of 2011 Dollars)

	Target LOS	LOS A	LOS B	LOS C	LOS D
Baseline Funding Gap	(60.08)	(94.17)	(66.97)	(32.27)	(5.67)
Dedicated Local Vehicle Property Tax	0.50	0.50	0.50	0.50	0.50
Auto Insurance Surcharge (10% Tax Rate)	12.16	12.16	12.16	12.16	12.16
Wholesale Motor Fuels Tax (8%)	12.22	12.22	12.22	12.22	12.22
Removal of Motor Fuel Tax in 2020	(24.66)	(24.66)	(24.66)	(24.66)	(24.66)
VMT Fee (2 cents/mi adjusted for inflation)	26.64	26.64	26.64	26.64	26.64
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban, adjusted for 3.5% inflation)	41.93	41.93	41.93	41.93	41.93
Remaining Gap/Surplus	8.71	(25.38)	1.82	36.52	63.12

All of the funding packages presented above demonstrate the ability to reduce reliance on the motor fuels tax and provide substantial resources towards meeting identified modal needs. Nevertheless, the analysis indicates that sufficient revenues are not generated to fully close the LOS A funding gap. In addition some funding packages require the use of low rated revenue sources to some degree in order to close the Target LOS and LOS B-D gaps. The analysis presented in this report shows there is a broad range of revenue and investment options that can be considered by North Carolina's citizens, elected officials, and policymakers to address the state's transportation needs. Exhibit 18 presents the Target LOS scenario where the State pursues a higher level of investment to improve the transportation system while at the same time replaces the motor fuels tax with a VMT fee. Nevertheless, this still requires a significant commitment of new funding. This scenario assumes additional revenues are derived from the implementation interstate highway tolling, elimination of transfers from the Highway Fund, and increases of certain existing revenues. Clearly, this is not the only funding strategy to accomplish this investment objective. It does point out that given the magnitude of needs facing North Carolina, stakeholders in the transportation system will need to consider the merits of broad range of options in order fulfill the 2040 Plan's vision.

Exhibit 18

Target Level of Service Investment Strategy Funding Scenario (billions of 2011 Dollars)

Target LOS Funding Needs	114.11
Funding From Existing Sources	54.03
Baseline Funding Gap	(60.08)
Removal of Motor Fuel Tax in 2020 (@ 35 cents/gallon)	(24.66)
Gap to be Closed by Additional/Increased Revenues	(84.74)
Additional/Increased Revenue Options:	
VMT Implemented in 2020 (2 cents/mile adjusted with inflation)	26.64
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban increase by 3.5% annually)	41.93
Eliminate Transfers from Highway Fund	4.25
Auto Insurance Surcharge	12.16
Additional 1% Highway Use (Auto Sales) Tax	3.25
Total Additional/Increased Revenues	88.23
Remaining Gap/Surplus	3.49

Chapter 7
Conclusions

To meet the mobility needs of its residents, businesses and visitors and facilitate economic growth, it is important that North Carolina continues to provide for the state of good repair of its transportation network, add capacity to address current congestion and future needs, provide reasonable choice and access across a variety of modes and ensure the safety of the system's users. The 2040 Plan has identified investment strategies to achieve a range of level of service goals ranging from significantly higher standards under the Target LOS, LOS A and LOS B, maintain current conditions for LOS C and degraded conditions assuming an LOS D standard.

The financial plan and investment strategies analysis found that NCDOT's current funding sources are insufficient to maintain even the current condition of the State's transportation system, a condition that is widely considered to be less than is needed to avoid deferred maintenance of systems, address mobility needs, or meet the infrastructure requirements needed for ongoing economic development and well-being. Diminishing motor fuel tax revenues due to the projected increase in fuel efficiency and expected reduced levels of Federal support are primary reasons for the gap between available resources and modal needs. To address this gap, it will be necessary to consider the implementation of new funding options that reduce or eliminate the State's reliance on motor fuel taxes and provide substantial, predictable, increasing, and sustainable funding to meet North Carolina's transportation needs. Such funding options include a VMT fee, interstate highway tolling, the elimination of transfers out of the Highway Fund, and continued indexing or increases for certain existing funding sources. While the addition of new revenue sources goes a long way to addressing the gap between resources and needs, it is also important to consider the range of investment options available that can both achieve improved transportation system performance within practical fiscal constraints.